

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۱۴ کلاس: ۲۰

$$\text{الف) } 27^\circ = (\pi) \text{ rad} \rightarrow \frac{D}{180} = \frac{R}{\pi} \rightarrow \frac{27}{180} = \frac{R}{\pi} \rightarrow 180R = 27\pi \rightarrow R = \frac{27\pi}{180} \rightarrow R = \frac{3}{20}\pi$$

$$\text{ب) } 125^\circ = (\pi) \text{ rad} \rightarrow \frac{D}{180} = \frac{R}{\pi} \rightarrow \frac{125}{180} = \frac{R}{\pi} \rightarrow 180R = 125\pi \rightarrow R = \frac{125\pi}{180} = \frac{25}{36}\pi$$

$$\text{ج) } \frac{5\pi}{12} \text{ rad} = (\pi)^\circ \rightarrow \frac{D}{180} = \frac{R}{\pi} \rightarrow \frac{D}{180} = \frac{\frac{5\pi}{12}}{\pi} \rightarrow \frac{D}{180} = \frac{5}{12} \rightarrow 12D = 180 \times 5 \rightarrow D = \frac{180 \times 5}{12} = 75^\circ$$

$$\text{د) } \frac{\pi}{4} \text{ rad} = (\pi)^\circ \rightarrow \frac{D}{180} = \frac{R}{\pi} \rightarrow \frac{D}{180} = \frac{\frac{\pi}{4}}{\pi} \rightarrow \frac{D}{180} = \frac{1}{4} \rightarrow 4D = 180 \times 1 \rightarrow D = \frac{180 \times 1}{4} = 45^\circ$$

$$\frac{D}{180} = \frac{R}{\pi} \rightarrow \frac{D}{180} = \frac{\frac{a\pi}{\lambda}}{\pi} \rightarrow \frac{D}{180} = \frac{a}{\lambda} \rightarrow 180D = 180a \rightarrow D = \frac{180a}{\lambda} = 22,5a$$

$$\frac{D}{180} = \frac{G}{180} \rightarrow \frac{D}{180} = \frac{12a}{\frac{1}{200}} \rightarrow \frac{D}{180} = \frac{12a \times 200}{1} \rightarrow 180 \times 4 \times D = 12a \times 180 \rightarrow D = \frac{12a \times 180}{180 \times 4} = 12a$$

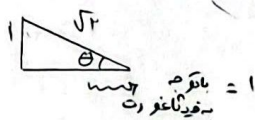
$$10a + 22,5a + 12a = 180 \rightarrow 44,5a = 180 \rightarrow a = \frac{180}{44,5}$$

$$\text{الف) } (\cos 40^\circ \cos 30^\circ - \sin 40^\circ \sin 30^\circ - \tan 40^\circ + 2 \cot 40^\circ = \frac{\sqrt{r}}{r} - \frac{\sqrt{r}}{r} - 1 + 2 = 1$$

$$\text{ب) } \frac{\tan 30^\circ + \tan 40^\circ + \tan 50^\circ}{\cot 30^\circ - \cot 40^\circ} = \frac{\frac{1}{\sqrt{3}} + 1 + 3}{\sqrt{3} - \frac{\sqrt{r}}{r}} = \frac{1+3+1}{\sqrt{3} - \frac{\sqrt{r}}{r}} = \frac{5}{\sqrt{3} - \frac{\sqrt{r}}{r}} = \frac{5 \times \sqrt{r}}{\sqrt{3} \times \sqrt{r} - 1} = \frac{5\sqrt{r}}{\sqrt{3}\sqrt{r} - 1}$$

$$-\sin 30^\circ \cos 40^\circ + \cos 30^\circ \sin 40^\circ = \sin \theta$$

$$-\frac{1}{2} \times \frac{1}{2} = -\frac{1}{4} + \frac{\sqrt{r}}{2} \times \frac{\sqrt{r}}{2} = \frac{r}{4} \rightarrow -\frac{1}{4} + \frac{r}{4} = \frac{r}{4} = \frac{1}{4} = \sin \theta \rightarrow \sin \theta = \frac{1}{2}$$

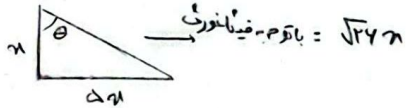


$$\tan \theta = \frac{1}{1} = 1$$

$$\frac{2 \tan 30^\circ (1 - \tan 30^\circ)}{(1 - \cot 40^\circ) 2} = \frac{2 \times \frac{\sqrt{r}}{r} (1 - \frac{1}{\sqrt{r}})}{1 - \frac{r}{r}} = \frac{\frac{2\sqrt{r}}{r} \times \frac{r-1}{r}}{1 - \frac{r}{r}} = \frac{\frac{2\sqrt{r}}{r} \times \frac{r-1}{r}}{0} = \frac{2\sqrt{r}}{r} \times \frac{r-1}{r} = \frac{2\sqrt{r}(r-1)}{r^2}$$

$$\frac{D}{180} = \frac{R}{\pi} \rightarrow \frac{40}{180} = \frac{R}{\pi} \rightarrow 180R = 40\pi \rightarrow R = \frac{40\pi}{180} = \frac{2\pi}{9}$$

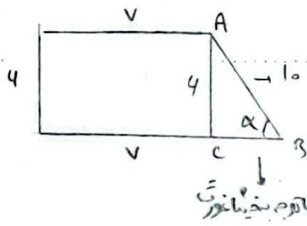
$$\tan \theta = \Delta \rightarrow \frac{\text{مقابل}}{\text{جانب}} = \frac{\Delta x}{x}$$



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$$\frac{17 \sin \theta - \cos \theta}{\sin \theta - 17 \cos \theta} = \frac{17 \times \frac{\Delta x}{\sqrt{14}x} - \frac{x}{\sqrt{14}x}}{\frac{\Delta x}{\sqrt{14}x} - 17 \times \frac{x}{\sqrt{14}x}} = \frac{17}{\sqrt{14}} = \frac{17\sqrt{14}}{14}$$

6

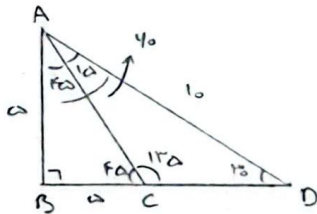


$$\sin \alpha = \frac{4}{10} = \frac{AB}{10} \rightarrow AB = 10$$

$$4 + 17 + 10 = 31$$

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7

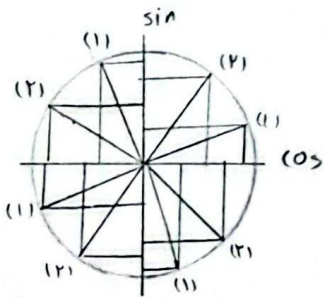


$$BD = \frac{\sqrt{14}}{17} \times 10 = 2\sqrt{14}$$

$$CD = BD - BC \rightarrow 2\sqrt{14} - 2 = 2(\sqrt{14} - 1)$$

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8



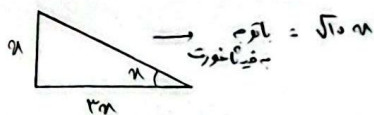
في الارتفاع $\cos \theta$ / $\sin \theta$ / θ

في الارتفاع $\cos \theta$, $\sin \theta$ / θ

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9

$$\tan \alpha = \frac{1}{17} = \frac{\text{مقابل}}{\text{جانب}} = \frac{1x}{17x}$$



$$\sin \alpha = \frac{1}{\sqrt{10}} \Rightarrow \sin \alpha = \frac{1}{\sqrt{10}}$$

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10